He also informed me that he took them in the same locality, at the same time. I showed them to Mr. Tugwell and he thought so little of them that I did not trouble to give him one, but Mr. Coverdale and Mr. Bower, to whom I showed them, expressed some interest, and I accordingly gave them each a specimen. A year or two afterwards I bought Coverdale's collection before he went abroad, and so his specimen came back to me. I have the four specimens now. I wrote to several of my correspondents about these examples, and I had a variety of opinions as to what they were, and where they came from, and then for a time I thought little of the matter, and they rested in my collection. They were not particularly well set (although both the pale and typical forms were similarly set, on our white entomological pins) and I gradually replaced the typical ones with better specimens that were set in a style I approved. As collecting slowed down and I began to study more, I was one day overhauling the drawers of the Geometrids at the British Museum, when I spotted the pale *Phibalapteryx* under the name of *P. aquata*. I am not sufficiently well trained even now to see any real distinction between *aquata* and *vitalbata*, except the difference in the ground colour, the former being white, otherwise the pattern and arrangement of the markings appear identical.

Mr. Bower spent an evening with me a little while since and, in the course of our gossip, he told me that shortly before the death of Mr. S. Stevens he was going through the latter's collection, when the latter pointed out a specimen of the pale insect labelled "unique." Mr. Bower told him that he had a specimen from me and gave him some details, and states that he then removed the "unique" from the cabinet.

I have since had some correspondence with Mr. Prout about the insect, and he informs me that there were two examples sold with the "Tugwell" collection, one of which was bought by Dr. Sequeira, but that he does not know what became of the other. These must have been obtained by Tugwell subsequently to my having shown him my specimens, but the locality seems not to be known. I have no doubt there are other examples in various collections passed over, as mine were for so many years, as pale forms of *P. vitalbata*.

Mr. Prout has given me the following information of the insect: *Aquata*, Hb., "Eur. Schmett.," fig. 410, without description; the figure is good, and as the species does not vary there is no need to give a description of the figure. Rössler and Hering indicate the larva as feeding on *Anemone pulsatilla* and *A. ranunculoïdes*, but the former says that in the absence of the *Anemone* species it can easily be reared on *Clematis*. Hering gives it as occurring in Pomerania, Speyer in Waldeck, Rössler in Nassau, Bremer for eastern Siberia, Staudinger for Amurland. The distribution from Staudinger and Wocke's *Catalog*, p. 192 reads "Germany, Belgium, Holland, Lugdun., ? Piedmont, ? Sarepta, Altai."

Some new Exotic Fleas (*with plate*).

By the Hon. N. C. ROTHSCHILD, B.A., F.L.S.

Typhlopsylla tristis, sp. nov. (fig. 1).—The spine just anterior to the antennal groove, in this species, is larger than in most species of the genus *Typhlopsylla*. Immediately in front of this spine there is a series of six short bristles, followed by a series of three longer ones. There is a single long bristle between

these rows. At the posterior edge of the antennal groove there is a row of about seven *very small* bristles, and in addition to these three long and one short bristles, with two shorter bristles on a level with the upper long one. There are three bristles on the hinder edge of the head. The prothorax bears three bristles just anterior to the comb, which consists of twenty teeth. The mesonotum bears a series of rather stout bristles at its basal edge, followed by a series of five more bristles, the series curving laterally frontal. The posterior edge of the mesonotum is produced at the apex into a long and a short spine, of the same colour as the rest of the mesonotum. The episternum + epimeron of the mesothorax bears on its lower portion three long bristles, one obliquely behind the other, further up there are four more arranged in pairs. The epimeron of the mesothorax bears seven bristles, three of these are arranged in a triangle. The second, third, fourth, and fifth abdominal tergites in both sexes bear a spine on each side at their posterior edges. In the females the tergites bear two rows of bristles, in the male, however, the anterior row is absent, or represented by one or two bristles only. The seventh tergite in the female bears one long and two shorter bristles on each side, apically on its posterior edge. In the male the more ventral and basal bristle is separated from the two others. The sternites in the males bear two bristles, and occasionally a third shorter one; in the females there are four subapical bristles and a shorter one near the middle. On the seventh sternite in the female there are a few more hairs present. The tibiæ of the forelegs bear six pairs of bristles on their hinder edges, those of the middle and hind legs bear seven. Each pair of bristles is accompanied by a shorter bristle on the outer surface of the tibiæ. The femora bear ventrally one thin bristle near the joint with the tibiæ. Length 2·6mm.

I have examined four specimens of this species from *Petaurus australis*, from Victoria. The type is in the British Museum.

Typhlopsylla ingens, sp. nov. (fig. 4).—The rostrum of the head is very long, reaching to the end of the coxæ; each segment bears some long hairs at its distal end. There are the two usual rows of hairs between the mouth and the antennal groove, and in addition to these there are numerous hairs, some of them very long, at and near the lower edge of the head. In the male there are some hairs on the dorsal portion of the head, between the antennal groove and the hinder edge. The antennal groove is bordered posteriorly by thin hairs, arranged in a double row of considerable length. In addition to these there is a row of long hairs, some oblique rows of shorter hairs, and a row of very long hairs near the hinder edge of the head. The pronotum bears a comb of thirty spines. The meso- and metanotum, the epimeron + episternum of the mesothorax are all covered with hairs. The mesonotum bears two long thin spines on each side. The tergites of the abdomen bear three rows of hairs, all the sternites the second (the actual first) inclusive, are all densely clothed with hairs on the ventral surface. The femora and tibiæ are covered with hairs, the bristles at the hinder edge of the tibiæ being strongly chitinised. The bristles at the apex of the anterior tibiæ are as long as the first and second tarsal joints; those of the middle tibiæ are shorter, being about the length of the first and half the second tarsal joints, while those of the posterior tibiæ are only as long as the first tarsal joint. Length 4·2mm.

This species was found on *Bathyergus maritimus* in Cape Colony, by H. A. Spencer. The type is in the British Museum.

Pulex madagascariensis, sp. nov. (fig. 3).—The second joints of the labial palpi are twice as long as the third. There is a single large bristle before the antennal groove, and another above the mouth. A few shorter bristles are scattered irregularly over the head. Between the antennal groove and the hinder edge of the head there is a single bristle, followed by three more close together, and then four more arranged in a like manner. A row of short densely set hairs is placed along the posterior half of the antennal groove. In one specimen there is a single short spine on one side of the head only, at the anterior margin of the antennal groove. There are two strongly chitinised genal spines on each side, and also a strongly chitinised spine on each side of the anterior portion of the head, just above the maxillæ. The pronotum bears a single row of bristles and a comb of twelve teeth. The mesonotum bears one row of long bristles and many small hairs. The fused episternum and epimeron of the mesothorax bears seven bristles, two of them are longer than the others and placed just above the stigma. The episternum of the metathorax bears three bristles placed in a row, the sternum bears a single bristle also. The epimeron is much longer dorso-ventrally than it is broad, it bears two

parallel rows of bristles, and an additional bristle under the stigma. The first abdominal tergite bears two series of long hairs, the next six have a single series only. The sternite of the second segment (*i.e.*, first sternite) in the *male* bears one hair ventrally and two laterally, while in the female there is a lateral series of six hairs. The next five sternites in the male all bear two long hairs. In the female the third, fourth, fifth, and sixth sternites bear from seven to nine hairs. The seventh sternite in the female bears two long and some short hairs. The eighth sternite in the male is, as usual, enlarged, and bears many small hairs on its ventral surface, and three strong spine-like bristles at its apical margin. The ninth sternite in the female has a curved row of bristles along its hinder edge. At the posterior edge of the seventh tergite there is a long bristle with two smaller ones on each side of it in *both* sexes. The hinder coxæ bear a transverse row of short stout hairs on their outer surface. The hinder edges of the tibiæ are deeply notched. They bear on their outer surface, near the hinder edge, one row of bristles. The hind tibiæ bear five pairs of bristles inclusive of the apical pair, the third and fourth pair are close together, a single bristle is placed between the fourth and apical pair, close to the latter. The bristles of the tarsi are very stout, these are absent, however, on the ventral surface medially, except at the apex. The claws are very long, being more than half the length of the fifth tarsal joint. Length 3-3·5mm.

The type specimens found by Mr. W. D. Cowan, in Madagascar, on *Centetes ecaudatus*, is in the British Museum.

Ceratopsylla incerta, sp. nov. (figs. 2, 5, 6).—A very small and pale species, having but one comb, and that on the prothorax, consisting of 28 teeth. The portion of the head anterior to the antennal groove is relatively much shorter in the male than in the female. The labial palpi are very short, being about half the length of the head. The metathoracic epimeron bears eighteen hairs in the female and twelve in the male. All the tergites of the abdomen bear two rows of bristles; the seventh tergite bears one long bristle at its posterior edge. All the tergites are much thickened internally (see fig. 6). The tenth sternite in the male is much reduced in size. On the surface of the middle hind coxæ there are long hairs, and the second segment of the anterior tarsi is longer than the first. Length 2mm.

I have examined specimens of this insect from *Nyctinomus jugularis*, Peters, found by Mr. W. D. Cowan, in Tamatave, Madagascar, and also from *Nyctinomus brachypterus*, Peters, found by Mr. Hart, in Sierra Leone. The type is in the British Museum.

Explanation of Plate II.

1. *Typhlopsylla tristis.* Copulatory organs ♂.
2. *Ceratopsylla incerta.* Head.
3. *Pulex madagascariensis.* Copulatory organs ♂.
4. *Typhlopsylla ingens.* Copulatory organs ♂.
5. *Ceratopsylla incerta.* Copulatory organs ♂.
6. *Ceratopsylla incerta.* Abdominal tergites showing thickening of skeleton (diagram).

Plebeius argus and Plebeius aegon.

By J. W. TUTT, F.E.S.

On the morning of August 4th, 1899, I caught at Simplon specimens of undoubted *P. argus* and specimens of just as undoubted *P. aegon*. The former was abundant, the latter rare, on the flowery banks on the left side of the valley directly above the village. The difficulty of defining the differences that exist between these closely allied species is marvellous when one considers the ease with which the males, at least, can be distinguished at the first glance. In comparing the males the following superficial differences were at once noticeable. *P. aegon* was of a more distinctly violet tint (*i.e.*, had a more pronounced tinge of reddish in its tone), the costa of the forewings was more broadly white, the apex rather rounder, the outer margin also rounded, and the dark marginal border much more decided. The hindwings of *P. aegon*